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ABSTRACT

Costs have long been an important consideration in educational programming. Only recently, however, have systematic cost analysis methodologies been applied in educational evaluation. This report identifies and documents the application of cost methodologies within evaluation and service projects conducted by Northwest Regional Educational Laboratory (NWREL) staff from 1977-1982. It also clarifies client cost needs and points to cost training and technical assistance needs of NWREL staff. Fifteen cost projects, subdivided under cost comparison, cost descriptive, budget and planning, and policy analysis cases, were identified and reviewed to (1) identify the decision situation, (2) describe the cost methodology, and (3) critique the application of cost analysis. (PN)

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paper and report series

No. 6 CASE STUDY OF NORTHWEST REGIONAL EDUCATIONAL LABORATORY COST STUDIES

John Ray Smith

Research Evaluation Program

No. 82 CASE REPORTS OF NORTHWEST
REGIONAL EDUCATIONAL LABORATORY
COST STUDIES

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Northwest Regional Educational Laboratory

May 1983

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The information presented in this publication does not necessarily reflect the opinions of the Northwest Regional Educational Laboratory and no endorsement should be inferred.

PREFACE

The Research on Evaluation Program is a Northwest Regional Educational Laboratory project of research, development, testing, and training designed to create new evaluation methodologies for use in education. This document is one of a series of papers and reports produced by program staff, visiting scholars, adjunct scholars, and project collaborators--all members of a cooperative network of colleagues working on the development of new methodologies.

What is the nature of the cost analysis services provided by the Laboratory to its clients? What types of cost procedures are used and how might Laboratory service be improved? These questions are addressed in this report which summarizes 15 examples of cost analysis service studies and points to several cases where more advanced cost analytic techniques might have been employed.

Nick L. Smith, Editor
Paper and Report Series

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INTRODUCTION

Costs have long been an important consideration in educational programming. Only recently, however, have systematic cost analysis methodologies been applied in educational evaluation. This report identifies and documents the application of cost methodologies within evaluation and service projects conducted by Northwest Regional Educational Laboratory (NWREL) staff from 1977-1982. It also clarifies client cost needs and points to cost training and technical assistance needs of NWREL staff. Fifteen cost projects were identified and reviewed to (1) identify the decision situation, (2) describe the cost methodology, and (3) critique the application of cost analysis.

Procedures

Studies to be reviewed were identified in several ways. First, all NWREL staff who attended a cost analysis workshop on February 3, 1983, conducted by Randall Eberts (University of Oregon economist), were asked whether they had been or were currently involved in any studies dealing with the costs of a program. If the staff member responded affirmatively, a copy of the project report was secured and an interview was scheduled. Staff were also asked to identify others who might be involved in cost studies. All identified cost studies were included in this case report. Further, the list of identified cases was reviewed by two NWREL administrators to confirm that no major cost studies had been omitted.

Initially, a copy of the published report of each cost study was obtained from the Principle Investigator (PI) and abstracted according to a standard combined abstracting and interview form. A copy of this form is located in Appendix A. At the interview, information that could not be determined from the written report was elicited (e.g., client and evaluator satisfaction) and the

accuracy of abstracted answers was checked. From these sources of information, a case study of the original report was drafted and presented to the PI for reaction.

The completed case studies were then sorted into categories according to type of cost problem. Four categories were identified: (1) cost comparisons between two or more programs or entities, (2) cost description of a single program or entity, (3) budgets and planning, and (4) policy analyses.

Case Descriptions

The first category consists of cases which simply compared costs of alternative programs or entities. In Case 1, the costs of three alternative pupil transportation systems were compared. Cases 2 and 3 compared costs of independent versus cooperative pupil transportation systems, although only costs for the cooperatives were delineated. Case 4 looked at costs of compensatory education programs, while case 5 looked at the cost of student activity programs.

The second category cases contain descriptions of the costs for a given program or entity. Typically, studies of this sort were conducted to depict an existing program, and they included a description of the costs of running that program. Cases 6 and 7 fell within this category. In these cases, The PI abstracted existing cost records and tabulated the total cost of the program. Case 6 looked at the cost of educating special populations; and case 7 looked at the cost of educating refugee students. Case 8 describes a series of reports referred to as "Adopter's Guides." Adopter's guides are provided to school personnel when a program is proposed. Each guide describes the step-by-step procedures of setting up and running the program, and often includes a rudimentary description of the expected costs the program will incur. Methods of cost analysis used in these reports range from a verbal discussion of costs to a detailed tabulation of program costs.

The third category is called budgets and planning. It served as a catch-all and included a variety of studies, each of which outlined a budget plan. Case 9 provided an expenditure analysis of state educational funds, which would enable chief state school officers to better explain school expenditures to taxpayers. A follow-up study analyzed state-by-state expenditures for 6 states. Case 10 described a four-step study that suggested changes in a state school finance formula. Interestingly, this case involved work with an advisory citizens' committee who generated alternatives for finance allocation. These alternatives were subsequently simulated by Laboratory staff so that the citizens' committee could see probable effects of their recommendations. In Case 11 detailed budget formulas were developed for use in determining equitable distribution of funds for compensatory education programs.

The fourth category is called policy analysis. The cases in this category provided theoretical discussions of policy changes which affect school functioning. Case 12 describes the effects of the Elementary and Secondary Education Consolidation Act of 1981 on state education agency (SEA) policy. The paper was to provide chief state school officers with alternative methods for dealing with policy changes required by the act. Cases 13 and 14 looked at implications for school funding which resulted from the passage of Proposition 13 in California and the One Percent Initiative in Idaho, respectively. The purpose of these papers was to alert school personnel to funding changes caused by the proposition and the initiative. Finally, Case 15 further discussed implications for school funding resulting from the passage of Proposition 13 and the One Percent Initiative.

Table 1 summarizes the cases contained within these four categories. For each case, the following are identified: report title, client, year of the study, budget allocated to the study, length of time to complete the study, and length of the report.

Table 1

Category	Case	Report Title	Client	Year	Budget	Time in Months	Number Pages
1	1	District Ownership vs. Contracting for Pupil Transportation Services: An Analysis	LEA	1980	5,000	2	62
	1a	District Ownership vs. Contracting for Pupil Transportation Services: Update	LEA	1982	5,000	1	53
	2	Final Report and Recommendations: Lake Stevens Area Transportation Cooperative Feasibility Study	SEA, LEA	1979	16,000	5	102
	3	Final Report and Recommendations: Yelm Area School Bus Cooperative Feasibility Study	SEA, LEA	1979	24,000	9	69
	4	Hawaii Secondary Analysis * (cost represents less than 5% of this major study)	SEA	1982	300,000	36	78
	5	An Analysis of the Costs of Student Activity Programs: Final Report	LEA	1981	5,000	3	101
2	6	The Education of Special Populations in the Northwest and Hawaii: A Regional Depiction Study	CSSO	1982	9,000	3	82
	7	The Education of Southeast Asian Refugee Students in the Northwest and Hawaii	LEA	1981	13,500	3	64
	8	Adopter's Guides					
3	9	State Expenditure Analysis: Highlights	CSSO	1980	7,500	3	36
	10	Montana Foundation Study: Final Report	SEA	1978	75,000	13	350
	11	Cost Factors and Fund Allocation in Oregon Migrant Education Programs	SEA	1982	NA	NA	17
4	12	The Elementary and Secondary Education Consolidation Act of 1981: SEA Policy Options	CSSO	1981	5,000	3	18
	13	California and Proposition 13: A Brief Analysis	CSSO	1979	1,666	.6	8
	14	A Brief Analysis of the Implementation of Idaho's 1% Initiative	CSSO	1979	1,666	.6	9
	15	Why Property Tax Limitations Won't Limit Everyone's Taxes	CSSO	1979	1,666	.6	5

LEA = Local Education Agency
SEA = State Education Agency
CSSO = Chief State School Officers
NA = Not Available

Categorization Rationale

The present categorization procedure should be viewed as tentative. Initially, an attempt was made to categorize the studies according to four common cost analysis procedures: cost benefit, cost effectiveness, cost feasibility, and cost utility. However, it soon became apparent that the Lab studies were not in keeping with this categorical schema. Instead, the studies fell more naturally into the four categories discussed above.

In some cases, however, alternative categorizations are possible. For example, the first three cases could be considered cost feasibility studies. One reason for this possible alternative categorization is that each of these cases describes program costs against which a cost ceiling may be compared. That is, if there was an established upper cost limit beyond which a program would no longer be considered feasible, then the case would technically be considered a cost feasibility study. However, for the purposes of this review, it was decided not to classify these studies as feasibility studies, since the cost feasibility of the program or alternative programs is never explicitly broached by any of the reports. In no case was an outer limit or cost standard ever set as a determinant of the feasibility of a program.

These same three cases could also be conceptualized as cost effectiveness studies. In assessing the costs of alternative transportation systems, it was assumed that each alternative would provide equivalent services--e.g., would transport students to and from school. Given this implicit assumption, one could argue that a cost-effectiveness ratio was reported when costs were tabulated because the denominator was equal in all cases. Again, however, it was decided that effectiveness data must be explicit before a case would be considered a cost-effectiveness study.

One observation that stems from this discussion of the tentative nature of the categorization procedure is that, in some cases, more elegant cost analyses could have been applied to the existing data. Cost effectiveness or cost feasibility analysis

could have been applied in the three cases just discussed. Other examples of possible under-utilization of existing data are Cases 6 and 7. These cases simply describe program costs derived from archival cost records. It seems likely that in the same archival records there were also measures of program effectiveness that could have been examined in relation to the program costs. Both of these programs were widely implemented, federally funded educational programs which had to be continually accountable for funding purposes. In addition, the Adopter's Guides, which describe how to measure program effects, as well as how to estimate costs, could readily have linked the measures of effectiveness to the cost estimates for future evaluative purposes. No such linkage was found in any of the reviewed Guides. Finally, Case 4, which provided an evaluation model based on existing data, failed to capitalize on available cost and effect data. This case could have encouraged schools to standardize program implementation so that the available data could be interpreted as a cost effectiveness ratio.

Implications for Laboratory Service

If the client asks for, and really only wants, a simple description of program costs, then an abstracting of archival records to obtain a listing of these costs is appropriate. If the client asks which program provides the most effect for the least money, then a cost-effectiveness or cost-benefit analysis is appropriate. In the reviewed cases, cost questions were always simple, and in turn the selected cost analysis methods were appropriately either descriptive or comparative.

The question is, why were simple (e.g., descriptive) cost questions consistently posed in lieu of more elegant (e.g., effectiveness or benefit) cost questions, especially when these examples show that in many cases existing data could have been analyzed using a more elegant cost method. To answer this question, it is necessary to explore the processes which underlie the formulation of the original cost question posed by the

educator or client. It is this question that determines the selection of a cost analysis method.

Discussions with evaluators and review of the cases suggest three factors which contribute to the formulation of a cost question by an educator:

1. Is the educator/client familiar with cost analysis methods? If the client is unaware of the full range of possible cost methods and related questions that could be asked, then only the lowest level, most intuitively obvious, cost questions can be verbalized (e.g., what does the program cost?).

2. Does the client want to know the relationship of costs to effects? Would that be useful information for programmatic decision making?

3. Is it politically, economically, and logistically feasible to collect effects data (e.g., are the data already available? is it possible to collect such data? etc.)?

A flowchart depicting combinations of these cost factors and their possible effects on the formulation of a cost question by the client is provided in Figure 1. It should be noted that this flowchart is predicated upon the assumption that the evaluator is trained in the use of cost methods. While in some cases this assumption may be unfounded, the issue of evaluator training needs in the area of cost analysis is beyond the scope of the present paper and will not be discussed here. (For a discussion of NWREL training needs, see Gray, P. and Smith, J. Needs Assessment Summary: Cost Analysis, Policy Analysis, and Other Evaluation Methods. Report No. 81 of the Paper and Report Series of the Research on Evaluation Program, NWREL.)

First, let us look at this case where the client is knowledgeable about cost analysis methods and can verbalize cost questions that elicit the desired information about his/her program. Referring to the flowchart in Figure 1, in the first situation (1), the client knows about cost analysis methods, wants to relate program costs to program effects, and the data are, or can be made, available. Here the solution is clear. The evaluator should assist the educator in obtaining the desired

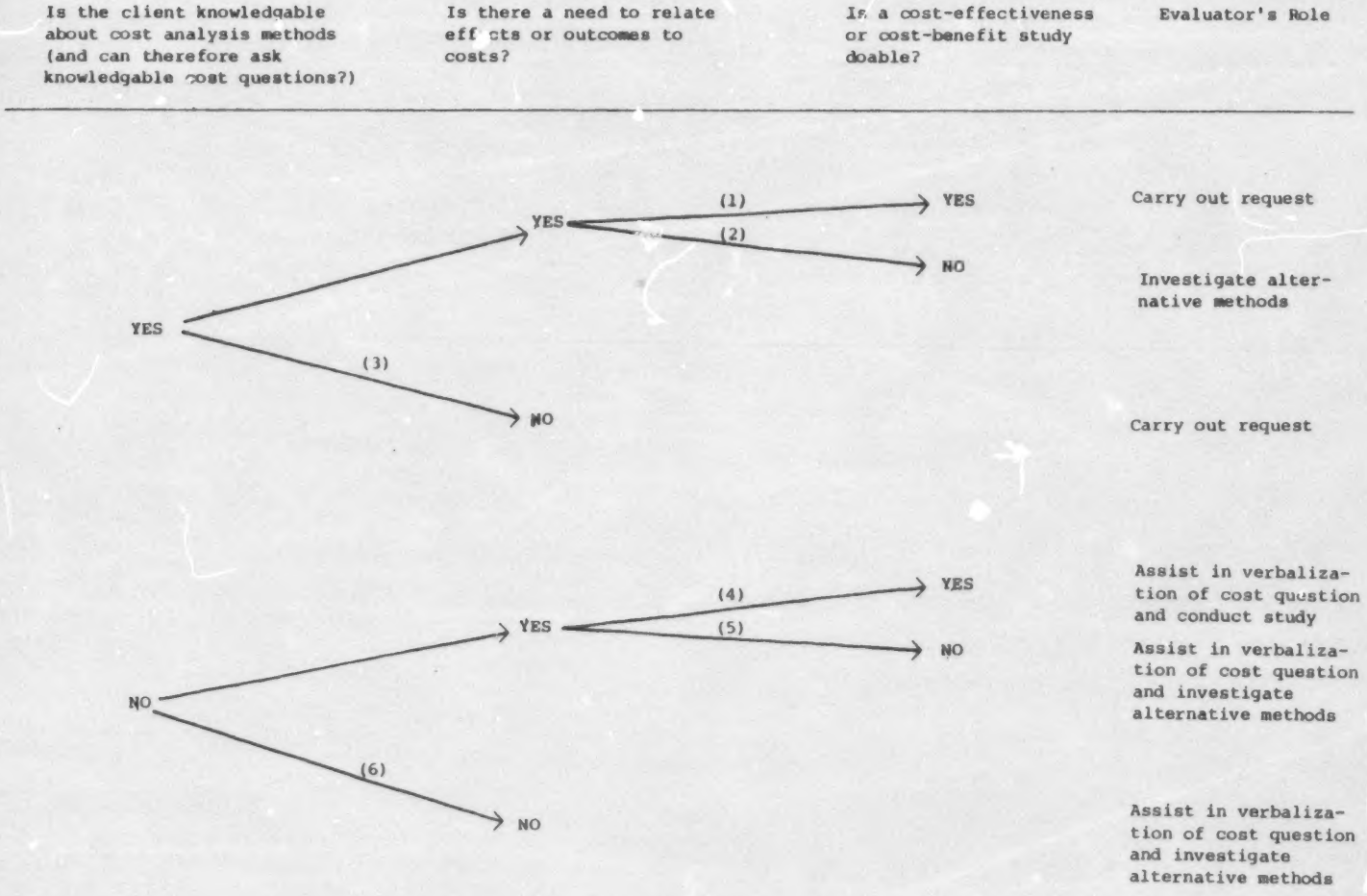

Figure 1: Factors affecting the choice of a cost analysis method.

information using the appropriate cost method. It seems unlikely, however, that this situation occurs often, given the paucity of cost-effectiveness or cost-benefit research evidenced in educational settings.

In the second situation (2), the client is knowledgeable about cost analysis methods, can ask sophisticated cost questions, and would use the information supplied by a cost-effectiveness or cost-benefit analysis. However, for some reason effects data are perceived as unavailable. Here the evaluator should explore plausible alternative data collection modes (e.g., use of archival data or non-obtrusive measures), and/or suggest an alternative cost analysis method (e.g., cost utility in lieu of cost effectiveness). If there is a need for a information about program effects and program costs, then the information provided by a simple description of program costs would clearly be inadequate. Cost utility analysis might be a reasonable alternative that would more closely approximate the type of information desired by the educator.

In the third situation (3), the client is aware of cost analysis methods, but only needs simple descriptive information about the program. Accordingly, the evaluator should supply the requested descriptive information. There is no need to explore the possibility of conducting a cost-effectiveness study, since the generated information would not be of use to the client.

Consider now the case where the client is unfamiliar with cost analysis methods. Consequently, cost questions that would elicit desired information cannot be verbalized. The evaluator can act in two ways in this situation. One, the educator's initial cost questions can be taken at face value, assuming that the corresponding cost methodology will provide the desired answers. Or, it can be recognized that a cost question cannot be knowledgeably posed when the types of cost analysis methods are not understood. Here the evaluator should help the client better understand the available cost methods prior to facilitating the verbalization of a cost question. It is presumed that most evaluators would assume this latter role if appropriate and within the realm of the evaluator's ability.

In the fourth situation (4), the client is unaware of cost analysis methods, but knows that information about the relationship of effects to costs is needed for some purpose (e.g., program decision making). Given that conditions are reasonable for a cost study, it is the responsibility of the evaluator to assist the client in conceptualization of cost methods, formulation of an appropriate cost question, and conduct of the study.

In the fifth situation (5), conditions are not conducive for a cost effectiveness or cost benefit study. After teaching the educator about the various cost analysis methods, the evaluator should explain how cost feasibility or cost utility methods will provide more information than would a simple description of program costs.

Finally, in the sixth situation (6), while helping the client understand cost analysis methods it is found that the client is not interested in relating cost information to outcome information. In this situation, alternative research methods, such as cost feasibility or simple cost description, should be suggested.

When considering the future of cost analysis methods for educational evaluation, it is important to understand how these factors affect the formulation of cost questions by educators. As noted in this review, applications of cost effectiveness and cost benefit methods are infrequently found in educational evaluation. If this is because educators do not know how to ask such cost questions, then efforts should be extended to educate educators about these cost methods. If it is because there is little need for information about the relationship of program effects and program costs, then the utility of these methods for educational evaluation should be questioned. Finally, if it is because conditions are rarely conducive for conducting cost-effectiveness or cost-benefit studies, then perhaps alternative cost methods (such as cost utility, cost feasibility, or program budgeting) should be developed and promoted. If the latter two

conditions hold, then the utility of the four common cost analysis categories (cost benefit, cost effectiveness, cost utility, and cost feasibility) for educational evaluation should be seriously questioned. If the former condition exists, then evaluators need to more actively train educators about the availability of cost analysis methods when called in to help answer cost related questions.

COST COMPARISON CASES

CASE 1

Decision Situation

In 1980 a study was conducted in a large metropolitan school district to determine the most cost-efficient means of providing bus service. Three alternatives were compared: (1) district ownership of a complete fleet of buses, (2) a contract with an independent organization to provide all service, or (3) a combination of district ownership and contracting. The third alternative was the one in use at the time. The sponsor of the study was the school district transportation department. It requested an estimate of the costs associated with the three alternatives. The administration of the school district intended to make recommendations to the school board based on the findings.

Several contextual variables were considered at the beginning of the study. For example, projecting the rate of growth of the school district and its transportation needs was problematic. Although the district student ridership had grown an average of 11 percent yearly over the previous 10 years, there was some evidence that this rate of growth might not continue. In addition, the district had recently purchased a computer program designed to increase the efficiency of bus routing systems. If the efficiency were increased, it is likely that the result would be a decrease in the transportation needs, in spite of continued growth in ridership.

For the purposes of this study:

- An 11 percent growth rate was assumed, necessitating the addition of three buses and 30,000 travel miles per year.
- No increase in efficiency resulting from the computer program was assumed, and cost of routing was to be maintained by the school district, regardless of which transportation alternative went into effect.

- A 20 year valuation period was assumed, since it avoided biasing against ownership, which required a large initial capital investment.
- Inflation was ignored since it was assumed to impact equally upon all three alternatives.

Methodology

The approach used in this study was simply to calculate and compare total costs for each alternative. Cost factors were identified and valued in a four-step process. Initially, a literature review was conducted to provide information on district ownership versus contracting and to review research approaches previously used in investigating this problem. Second, interviews with the school district and contracting staff were conducted in order to better understand the operations associated with the provision of travel services. Third, the transportation budgets of the present and other school districts were reviewed in order to identify cost categories included in travel budgets and to set up the proposed budget in a form usable to the district. Finally, school bus manufacturers, banks, leasing firms, contractors, and the national contractors' association were contacted to obtain information on the availability and costs of purchasing a fleet of buses.

Cost of District Ownership

To estimate costs of school district operation of the entire transportation system, fixed and annual costs were identified. In this situation, a fixed cost was referred to as the initial financial outlay required to begin the program. Fixed costs included:

- bus acquisition costs
- bus replacement costs
- land acquisition costs
- building costs

Annual costs were identified as those that would be expended yearly to maintain the program. The following annual costs were identified:

A. Maintenance and operation costs

1. wages
2. repair costs
3. insurance
4. fuel and supplies

B. Administration Costs

1. wages
2. supplies

Monetary values were assigned to the fixed costs in several ways. The logic behind the major fixed cost, bus acquisition, was as follows. At the time of the study the school district had a two-part transportation system where the school district provided routing for all buses and owned 70 buses. It contracted for the use of an additional 215 buses, so in order to assume full responsibility for the transportation system, 215 buses would need to be purchased. Further, replacement buses would have to be purchased each year. The types and sizes of these buses were estimated based on those currently used by the contractors.

Three bus purchase alternatives were considered:

- to buy a fleet of new buses,
- to buy a fleet of used buses,
- to buy the contractor's fleet.

Costs for new and used buses were estimated from current market prices for each bus, as provided by banks, bus manufacturers, and leasing firms. Cost of the contractor's fleet was estimated using a shadow pricing approach, because the contractor was unwilling to cite a price for the fleet. In shadow pricing, the value of a product is estimated from the market price of a similar product. In this instance, the cost of the contractor's fleet was valued based on the cost of a similar used fleet.

Two other fixed costs included land acquisition and building costs necessary to accomodate the new fleet. Three accommodations were considered:

- use of land already owned by the school district that only required construction of a building,
- purchase of the contractor's facility,
- purchase of land and building of a facility.

Again, costs for these three alternatives were based on market and shadow pricing techniques. The cost of building on the previously owned site was estimated using square foot construction costs associated with a storage facility. Purchase of the contractor's facility was shadow priced based on the average values of buildings in that neighborhood. Finally, the market value of the third land site was added to an averaged estimate of building costs to arrive at a price for that alternative.

The total annual costs for maintenance and operation were estimated from existing staff loads and from knowledge of the staff currently employed by the contracting firm. Projected wages were calculated from the average salary for each position. Projected bus driver wages were estimated based on the average hourly rate for city drivers and on the number of hours that bus drivers presently work for the contracting service. Repair costs were estimated from present repair costs and were assumed to remain relatively stable over the next 20 years. Insurance, fuel, and supply costs were estimated from similar present values. In terms of administration costs, again wages were estimated based on projected personnel needs and on average wages. Similarly, price of supplies was based on existing needs. In calculating the price of the above costs, the 11 percent system growth rate was taken into account. The reader is encouraged to consult the original document for detailed descriptions of these calculations.

Cost of Contracting for Bus Service

The second alternative was to contract for all bus services. Estimating costs of this alternative consisted of only two components: (1) the cost of the contract, and (2) cost of administration and routing. Because the contractor had taken into account a number of other components of service when determining contract costs, only the total contract cost was reported by the researcher. Total costs for contracting were based on the projected miles of service and on the average charge per mile. Estimates of district administration costs were based on reductions of current staff that would be let go when the district ceased to provide bus services. Cost of routing services was based on present costs of the service.

Cost of Combining Ownership and Contracting

The third alternative was to combine district ownership and contracting. No cost analysis was conducted on this alternative, because analysis of the costs associated with the first and second alternatives also identified the costs incurred from adopting the third alternative. A discussion of this rationale can be found in the next section.

Results and Decisions

The total cost of district ownership was calculated based on the following assumptions: (1) a new fleet of buses would be purchased because of the high estimated costs associated with maintenance and replacement of used buses, and (2) a new facility would be built on land the district already owned, since that was the least expensive alternative.

To compare accurately each alternative, the annual costs were converted to present value, giving them a common time frame. A "discount" or interest rate of 9.5% was used to determine the present value of the annual costs associated with each alternative. This discount rate is an estimate of return the district would realize if the funds were used for something other

than transportation. A comparison of the total costs of ownership with those of contracting, when converted to present values, showed a 5.3 percent difference, with contracting ($50,788,458) being less expensive than district ownership ($53,473,462). This cost advantage was maintained even when values were annualized. The 3.9 percent cost difference between ownership and contracting was again in favor of contracting. These costs are summarized in Table 1:1.

Given the minimal differences between these alternatives, the researcher suggested serious consideration of the third alternative, joint ownership and contracting. Costs were not discussed for this third alternative, because the previous analyses had shown that ownership costs and contracting costs were nearly equal. Consequently, the researcher pointed out qualitative advantages of adopting the third alternative.

First, given the unpredictable growth rate of the school system, the burden of increasing or decreasing bus needs could be placed on the contractor. A second advantage was seen as resulting from the school district's ability to compare its costs with the contractor's costs. These comparisons might encourage the district and contractor to keep their costs minimal. Finally, if contracting costs rose to an unreasonable level, the school district would not be entirely dependent upon the contractor. Based on this study, the existing method of joint ownership and contracting was maintained.

Follow-up

Two years later a follow-up study was requested, so the original study was repeated. At this time, the original projection that the transportation system would grow at a rate of 11 percent and 30,000 miles per year was found to be invalid. This was due partly to the installation and use of the computerized bus routing system, which reduced the need for buses from 280 to 239. Given the stabilized growth and increased bus route efficiency, the follow-up study found the costs of district ownership to be significantly lower than those of contracting.

Table 1:1

COMPARISON OF THE PRESENT VALUE
OF THE TWO ALTERNATIVES

	DISTRICT OWNERSHIP		CONTRACT	
YEAR	ANNUAL COSTS	PRESENT VALUE	ANNUAL COSTS	PRESENT VALUE
1	6,697,120	6,338,077	5,647,163	5,137,295
2	5,949,809	4,923,925	5,691,263	4,709,958
3	5,975,785	4,498,913	5,735,363	4,317,909
4	6,001,761	4,110,508	5,779,463	3,958,260
5	6,027,737	3,755,565	5,823,563	3,628,355
6	6,053,713	3,431,208	5,867,663	3,325,756
7	6,079,689	3,134,807	5,911,763	3,048,221
8	6,105,665	2,863,958	5,955,863	2,793,691
9	6,131,641	2,616,463	5,999,963	2,560,274
10	6,157,617	2,390,313	6,044,063	2,346,233
11	6,306,800	2,227,180	6,088,163	2,149,971
12	6,361,235	2,043,582	6,132,283	1,970,024
13	6,387,211	1,866,663	6,176,363	1,805,043
14	6,413,187	1,705,033	6,220,463	1,653,795
15	6,467,042	1,570,398	6,264,563	1,515,144
16	6,493,018	1,428,611	6,308,663	1,388,049
17	6,518,994	1,304,825	6,352,763	1,271,552
18	6,544,970	1,191,745	6,396,863	1,164,777
19	6,570,946	1,088,448	6,440,963	1,066,917
20	6,524,922	983,240	6,485,063	977,234
TOTAL	126,038,862	53,473,462	121,322,280	50,788,458

The purpose of this follow-up study was to provide information that would enable the school district to draw their own conclusions about the choice of a transportation system. Consequently, no explicit recommendations for change were made. At the time of this review, the school district had continued to maintain the joint ownership and contracting option.

Summary

As a decision-making aid, the report provided the school district with enough information to make an informed judgment. The school district was very satisfied with the accuracy, presentation, and utility of both the original and follow-up reports. This satisfaction was subsequently documented in a formal letter of appreciation which acknowledged "the best report ever received from a consultant."

The principal investigator (PI) was reasonably satisfied with the initial study and felt that, while the cost estimates may not have been exact, the estimated proportional difference between the alternatives was accurate. This study was very thorough and could serve as a model for future studies. The PI was careful to identify all relevant cost factors and to use appropriate pricing procedures. The follow-up study, however, shed light on an additional procedure that might have increased the validity of the original study.

Ignoring the potential effect that the new computerized routing system would have on district transportation needs greatly affected the cost estimates of the two alternatives. A sensitivity analysis may have shed light on the importance of the assumption about system growth. This analysis would simply provide different cost estimates for each possible growth level of system transportation needs. These differential costs could then be compared to see how different growth assumptions would affect the cost estimates. Future studies might include a sensitivity analysis when a cost estimate is based on a tentative assumption.

CASE 2

Decision Situation

In 1979 a study was conducted to determine the feasibility of a pupil transportation cooperative for seven rural school districts. The State Legislature and Superintendent of Public Instruction were looking for ways to reduce expenditures for pupil transportation programs. The Superintendent provided funds for the investigation of the feasibility of a rural transportation cooperative.

Two independent studies were conducted. First, the need for a transportation cooperative was assessed by examining the facilities and transportation costs for each district. Second, having established the need for a transportation cooperative, a model for a transportation cooperative was developed. The proposed model will not be detailed in this case study. However, the steps taken to identify costs and savings associated with adoption of the model will be discussed.

Calculation of costs and savings was predicated on the following considerations:

- System growth for each district was estimated from growth over the 1977-1978 to 1978-1979 academic years.
- In some districts, one-time capital investments for the purchase of new buses distorted the yearly transportation expenditures. For example, if a district has allocated money for bus purchases in one year, their budget was temporarily inflated in comparison to districts where no major capital expenditures were allocated. To take this distorting factor into account, comparisons between districts were often drawn two ways: some including capital expenditure and excluding capital expenditure. This provided a more accurate basis for comparison between districts.

Study 1

Methodology

The NWREL staff used a multifaceted approach to the investigation of this problem. First, a team of consultants visited each district site to review transportation facilities and to examine cost records. At this time, interviews were conducted with administrative and maintenance staff to assess their perception of the need for, and feasibility of, a transportation cooperative. In addition, state and district transportation budgets and other relevant materials dealing with transportation costs, were examined in order to identify cost categories and expenditures.

Based on these avenues of investigation, equipment and facility needs of each district were described in a series of comparisons. Each comparison was presented in tabular form. A list of all comparisons follows.

District-by-District Comparisons

1. Fleet size (including regular and reserve buses)
2. Number of students transported
3. Percent increase in enrollment
4. Transportation expenditures
   a. Total transportation and per pupil expenditures. Per pupil expenditure was calculated by dividing total transportation expenditure by the number of students transported.
   b. Percentage increase in transportation expenditure. This figure ranged from 6.1 percent to 54.2 percent increases. Several factors which affected this figure were identified and taken into account. Increase in transportation expenditure was re-calculated after subtracting from the total expenditures the effects of:

(1) one-time capital expenditures for equipment

(2) percent increase in enrollment

(3) percent increase in inflation as indicated by the Consumer Price Index (12.3%) based on local rates

c. Transportation expenditures per bus (total expenditure divided by the number of buses)

5. Percentage of total mileage eligible for reimbursement by the state. (The state reimburses school districts for 90 percent of the cost of approved regular and handicapped to-and-from busing and some special programs.)

6. Percentage of total operating hours eligible for reimbursement by the state. (Number of reimbursable operating hours divided by total operating hours.)

7. Seat utilization. (Number of students transporated divided by number of bus seats is inaccurate, since most buses cover more than one route daily. Since the number of runs per bus is idiosyncratic and records were not clear, the seat utilization factor was calculated based on the average number of miles each bus traveled divided by the number of pupils transported. This figure was viewed as tentative since districts covering a large number of miles and with fewer students would have to drive more miles per pupil. In general, however, a district with a large number of miles per bus and low number of miles per pupil was seen as more efficient than a district with high bus mileage and high per pupil mileage.)

8. Personnel as a percentage of transportation expenditures.

9. Number and types of full-time employees.

10. Number of new buses needed due to increases in enrollment by 1985. This calculation was based on the following formula:

$$\frac{\text{Number of new students}^{(1)} \times \text{Percent transported}^{(2)}}{\text{Average number of students per bus}^{(3)}}$$

(1) figure supplied by the office of the Superintendent of Public Instruction
(2) estimated previously in the study
(3) estimated previously in this study

11. Number of replacement buses needed by age and type of bus. It was assumed that conventional buses would be replaced after 10 years and transit buses replaced after 20 years.

12. Total additional buses needed by 1985 based on the sum of new buses needed and replacement buses needed.

In addition to quantitative comparisons described above, qualitative comparisons were also drawn between school districts. During site visits visual examinations were conducted on the condition of the equipment and facilities of each district and subsequent transportation needs were projected.

Results and Decisions

Based on these quantitative and qualitative data, and on recommendations made by the school district superintendents, the Lab staff concluded that a transportation cooperative was a plausible alternative to the existing transportation systems. It was suggested that four of the seven of the reviewed districts had an immediate need for improved transportation facilities and should be considered "core" members of the cooperative. These four districts would be dependent upon the cooperative for the entirety of their transportation needs. Three districts had sufficient facilities to maintain independent transportation services. It was suggested that these three districts be included as "associate" members in the cooperative and be allowed to utilize the facility for major service needs.

Given the observed need for improved transportation services, the Lab staff worked in conjunction with the district superintendents to develop a model for a transportation cooperative. This model is described in detail in the full report. Only costs will be discussed in the following section.

Study 2

Methodology

Cost analysis of the proposed transportation cooperative was conducted in a global, almost exclusively qualitative manner. Only two cost factors were considered. The first calculated cost for constructing and equipping a new centralized busing facility. The cost of such a facility was estimated based on the market price of average per-square-foot costs of a similar

facility. Land acquisition costs were estimated given the assumption of $5,000 an acre cost. Rationale for either of these cost estimates was not provided in the report.

Costs and cost savings associated with implemetation of the cooperative were also considered. Four areas of potential savings for each district were identified. First, savings in maintenance were suggested to result from improved preventive and route maintenance for buses. This improvement in maintenance was suggested to result in a decrease of "break-down" costs. In addition, savings of wages of 3.8 full-time mechanics were calculated. The proposed model had indicated that 3.8 fewer mechanics would be needed in a centralized facility than in distributed facilities. Overall, a 30 percent savings for cooperative core members was estimated in the area of maintenance costs. The derivation of this 30 percent savings was not described.

The second area of savings was suggested to result from purchasing buses and equipment in bulk rates. Although the researchers were unable to document exact savings rates, possible savings of 5-10 percent were projected.

The third area of savings was seen as a result of increased efficiency in bus routing schedules. A 10 percent savings due to this increase in efficiency was suggested, although again the source of this savings estimate was not documented.

The fourth area of savings was in the area of safety and training. Although long-range savings was expected to accrue in this area, no monetary value was fixed to the savings. These sources of potential savings were summed and a total cost savings reported.

Results and Decisions

The report concluded first that a school bus cooperative among the seven districts was feasible. Second, after developing a model for such a cooperative, savings of up to 11 percent of their transporation budgets for each district were estimated. The Superintendents seemed pleased with the study according to

the PI. However, at this point in time, no transporation cooperative has been established as a result of the study. The PI attributed this to a state decision not to fund the cooperative, rather than to client dissatisfaction with the study. No follow-up services have been requested.

Summary

The PI felt that the study provided a good portrayal of savings for the proposed model. One noted strength of the study was involvement of the schools in the study. School involvement and subsequent communication was reflected in the level of qualitative assessment conducted in the study. A clear weakness of the study, however, was the global, non-quantified, analysis of costs and savings of the proposed model.

This study might have presented a stronger argument if it had been more focused on identification of the need, and development of a model, for a transportation cooperative. The cost component of the study was not given sufficient attention to justify its inclusion. Although costs were discussed and figures projected, there was not enough evidence supporting the saving estimates to make them credible.

First, little or no justification was given for cost estimate data. Second, the cost data were always presented in total sum figures rather than detailed component costs. This omission leads the reader to question what factors contributed to the total cost. Finally, there was no attempt to take the cost figures beyond the point of cost description. For a project as extensive as the present transporation cooperative, an initial cost description can be misleading: present and annualized cost figures need also to be calculated for a more accurate picture of program costs. Indeed, the inadequate costing out of the model (which itself had clearly been thoroughly and carefully developed) may have shadowed, or drawn attention from, a worthy model.

In sum, the qualitative depictions of the school districts, the quantitative district by district comparisons, and the development of a model for a cooperative were thorough and convincing. However, adding on the cost dimensions would have improved this study considerably.

CASE 3

Decision Situation

Case Study 3 also investigated the feasibility of a school bus cooperative. In 1979 the State Legislature and the State Superintendent of Public Instruction requested a study that would investigate ways to reduce costs in pupil transportation systems. Specifically, a study of the feasibility of a transportation cooperative for 21 school districts was requested. The districts represented a diverse range of schools from a large urban district with 7,602 students and 46 buses to a very small rural district with 35 students and 1 bus. The geographical range was 40 miles east to west and 40 miles north to south.

The methodology described in Case Study 2 was replicated in this study and will not be detailed here again. In general, however, two independent studies were again conducted. First, the need for a cooperative was assessed by examining the facilities and growth needs of each of the districts. Second, a model for the cooperative was developed and its potential cost savings discussed.

Study 1

Methodology

Using the site visit, interview and records analysis methods described in Case 2, district by district comparisons were drawn. These comparisons are described below:

District by District Comparisons

1. Fleet size
2. Number of students transported

3. Transportation expenditure with capital removed (to remove the effects of one-time major expenditures which distort the budget)

   a) cost per pupil (total expenditure divided by number of students transported)
   b) cost per bus (total expenditure divided by number of buses)
   c) cost per mile (total expenditure divided by number of miles traveled)
   d) percent of total mileage eligible for state reimbursement
   e) cost per operating hour (total expenditure divided by number of operating hours)
   f) cost per reimbursable operating hour

4. Seat utilization (number of seats on a bus divided by number of students transported). This factor should be greater than one to show that buses are being used on more than one run daily.

5. Personnel as a percentage of the total expenditure

6. The number of personnel (e.g., superintendent, supervisors, clerical mechanics, maintenance and drivers).

The need for a cooperative was defined and two alternative models were described. In each model, the construction of two major facilities was recommended and core and associate districts that would contract with the facility for services were described.

Study 2

Methodology

The cost of building two facilities was estimated based on market prices of average construction costs and average real estate costs for each building site. Specific costs were delineated, but no rationale was provided for cost factor components or for cost estimates. Because the state would reimburse the districts for 90 percent of the costs of building the cooperative, methods of financing the remaining 10 percent were discussed.

Results

A potential savings was anticipated, but no monetary figure was reported.

Summary

A pupil transportation cooperative has been implemented partly as a result of this study. The school districts evidenced great satisfaction with the report, and reported that it was instrumental in justifying the development of the cooperative. The PI was also satisfied with the study and felt that it provided a good exploration of cooperative alternatives.

Two articles describing the resultant cooperative entitled "The Washington Experiment" and "Washington Co-op Holds Line On Costs" were published in the February/March 1982 edition of School Bus Fleet. The second article reported a 20 percent to 40 percent savings on cost of parts purchased and repair charges for associate cooperative members being half that of retail repair shops. Both articles spoke highly of the success of the cooperatives and recommended that other districts consider a cooperative system.

This study did not delineate costs or provide monetary estimates even though it is presented as a cost feasibility study. Instead, anticipated savings in the areas of maintenance, operations, purchasing, driver and safety training were discussed in the abstract. This theoretical comparison of costs associated with independent versus cooperative transportation systems was a convincing argument in favor of the establishment of a cooperative. This theoretical approach was more credible than the crude or non-defendable cost estimates reported in Case Study 2. This cost study does a good job of detailing areas of potential savings without placing a monetary value on the savings.

The study was concise, comprehensive, and well written. It made excellent use of tables to present comparative data for the 21 districts. Further, verbal capsulizations of the tabled

materials drew attention to important points in the tables. Critical differences between various district transporation needs were clear after reading this report. The report is a good example of a cost study which does not calculate monetary cost figures. One aspect of the study that could be strengthened would be the identification of cost factors. More attention could have been paid to identification of specific cost factors, or ingredients, rather than using total cost figures. For example, the components of constructing a facility could have been delineated rather than using total construction as a factor. This attention to cost factors would make clearer the magnitude of the project than does a sum construction cost factor. No monetary valuation would be necessary for the detailed cost component factors in order to transmit the idea of project magnitude and complexity.

CASE 4

Decision Situation

This project took advantage of existing Title I evaluation data and attempted to develop a model for evaluation for future use at the SEA level.

Detailed steps of this study will not be outlined because, in this case, cost data are merely a small part of a large-scale project. However, cost data are used in an interesting manner, and warrant mention.

Methodology

Cost per pupil was the unit of cost reported in the study. Although the origin of the cost figure was not reported, it is assumed to have been part of routinely collected data. Of interest here is the manner in which the cost per pupil figure was incorporated into the evaluation model. For two years a significant ($p < .05$) correlation was found between per pupil cost and pupil gain. That is, the higher the project funding level, the greater the gain in student achievement.

Once the relationship between cost and achievement was noted, further analyses were conducted that took this relationship into account. A series of analyses of covariance were conducted to compare the effects of different instructional approaches on student achievement where per pupil cost differences were partialed out.

Results and Discussion

This report used cost per pupil in several exemplary ways. First, cost per pupil was used as a descriptor for the purpose of program comparison. Second, cost per pupil was treated as a variable and correlated with other variables. Finally, once the relationship between cost and achievement was documented, the effects of cost could be partialed out in order to provide a better picture of the relationship between instructional styles and achievement.

Summary

The purpose of the project was to provide a model that utilized existing data for SEA evaluations. The report appeared to have available cost and effect data for construction of cost-effectiveness ratios. However, the PI reported that there was no way to determine if schools were uniform in program implementation, and consequently it was inappropriate to form cost-effectiveness ratios. This study was unique in that rarely are conditions so favorable for a cost analysis in terms of readily available cost and effectiveness data. Perhaps schools could have been encouraged to standardize implementation procedures so that future evaluations could take full advantage of the existing cost and effectiveness data. In all, this report is an excellent example of the use of cost data in the context of a wide-scale evaluation project.

CASE 5

Decision Situation

In 1981 the cost of athletic and non-athletic activities were compared for seven schools in five districts. The study was requested by the school district superintendents who wanted information about costs of such activities and recommendations on how to cut activity costs while continuing to meet the needs of the students. The study was limited to those activities for which a stipend was paid for coaching and advising for the 1980-1981 academic year.

There were some significant limitations that made comparisons across districts difficult. These limitations were due primarily to differences in record keeping patterns across schools. For example, when calculating costs of an activity, transportation costs were considered. However, each school used different methods to calculate mileage figures for their activities, charges for mileage traveled differed across schools, methods of calculating cost estimates in general differed across schools, as did methods of record keeping.

A second major difficulty was encountered as a result of discrepancies between schools in terms of methods of record keeping. One problem was determining pupil counts for extra-curricular programs. Some schools based the number of participants on the number that tried out for the activity, some on the number of students receiving a letter in the activity, and some on the number that completed the season. Because these counting systems were so discrepant, calculations of cost per pupil, and pupil/advisor or coach ratio may be distorted.

Methodology

Four methods of inquiry were utilized in order to best describe the costs associated with the extracurricular activities. First, site visits were conducted at each school, at which time interviews with the principal, activity director, director of transportation and maintenance, and other relevant staff were conducted. In addition, the State Interscholastic Activities Association was contacted for additional cost information. Finally, an ERIC search was conducted to identify other studies on the costs of extracurricular activities. Only two relevant studies were identified.

In order to compare the number and type of activities offered by each school, each funded activity, the stipend allocated for that activity, and which schools offered the activity, was presented in tabular form.

Cost for athletic activities were presented in tabular form with significant differences being highlighted in the summarizing text. Athletic activities were divided according to whether girls or boys participated in them (if there was a distinction in team membership) and the following costs presented: stipend to coach or advisor, Associated Student Body (ASB) expenditures, transportation expenditures, and the sum total.

ASB revenue is generated through the sale of ASB cards, ticket sales to events, and student fund raisers, etc., and is used to pay for play scripts, band uniforms, officials of athletic events, etc.

Transporation costs are usually assumed by the district's general fund. However, because travel costs for extracurricular activities are not reimbursable by the state, they must be budgeted. Each state maintained separate records of transportation costs. However, no uniform record keeping system was utilized across states' transportation costs. Consequently transportation costs were <u>assumed</u> to be those reported by each district.

In addition, cost per participant (total cost divided by number of participants) and ratio of participants to coaches (number of participants divided by number of coaching or advisor position was presented). See Table 5:1 for an example of these calculations. Each table was followed by a summary of table highlights.

It was much more difficult to calculate costs for non-athletic events, since records for such events were rarely kept. Further, such activities often took place during school time (e.g., choir, band, drama). Because the study was assessing costs of extracurricular versus curricular costs, general fund costs associated with regular classroom expenditures were ignored, and only extra stipends (salaries, ASB, and travel) were included as activity costs. Again, for each activity, salary, ASB, and transportation, costs were reported.

In the case of the yearbook, however, where revenue incurred from sales represented a significant sum of money, income was reported and the difference between ASB expenditures and ASB revenues was reported as profit.

Finally, to assess each school's ability to maintain extra-curricular activities in the future, sources of funds for each school were compared. For example, the amount of ASB revenue generated by each school (e.g., income from ASB card, dance, yearbook, ticket, and club membership sales) was compared across schools.

Assessment of the costs of extra-curricular activities concluded by noting that only direct, not indirect, costs were calculated. The following indirect costs were noted:

- administrative position salary
- maintenance and custodial personnel wages
- laundry costs
- operations costs (heat, lights, etc.)

However, no cost value was affixed to these costs because of inadequate record keeping by most of the schools.

Table 5:1

BOYS' BASKETBALL

School	Salary Costs	ASB Expenditures	Transportation Expenditures	Total
	$5,144.00	$2,586.63	$1,011.43	$ 8,742.06
	5,060.00	1,405.25	1,238.84	7,704.09
	5,386.00	1,736.00	1,986.00	9,108.00
	4,448.00	4,065.90	2,412.11	10,962.01
	4,325.00	4,361.64	1,085.40	9,772.04
	6,007.00	3,262.41	996.37	10,265.78
	6,007.00	4,194.36	1,078.44	11,279.80
Mean	$5,196.71	$3,087.45	$1,401.23	$ 9,690.54

BOYS' BASKETBALL

School	Total Costs	Number of Participants	Cost per Participant	Number of Coaching Positions	Ratio of Participants to Coaches
	$ 8,742.06	50	$174.84	4	12.5
	7,704.09	50	154.08	4	12.5
	9,108.00	71	128.28	3	23.7
	10,962.01	67	163.61	3	22.3
	9,772.04	36	271.44	3	12.0
	10,265.78	47	215.42	4	11.8
	11,279.80	39	289.22	4	9.8
Mean	$ 9,690.54	51	$199.98		14.9

Results and Discussion

General observations stemming from the descriptions of extracurricular activities were summarized. Most noteworthy observation included the wide variation in costs in different schools for the same activities, and disproportionate amounts of money spent on boys versus girls athletic events. Specific recommendations for changes in extra-curricular programming were delineated for each district. General recommendations included:

- cutting extracurricular events in which a low number of students are involved
- decreasing transportation costs by ride sharing between school districts
- maintaining events for which great community support is evidenced (e.g., by ticket sales revenue)
- standardizing record keeping across schools

This last recommendation was stressed as essential if accurate cost comparisons across schools are to be drawn in the future.

Summary

This study depicted the expenditures for athletic and non-athletic extracurricular activities, and clarified the differences between districts. Further, specific recommendations for each district based on the depiction were posited. The PI felt very confident that the study accurately portrayed the differences between schools. However, there has been little indication that the school districts were satisfied with the study. The major recommendation that a standardized record keeping system across schools be implemented has evidently not been followed. The PI offered to help develop such a system, but this service has yet to be requested. There is also no indication that any of the other recommendations were followed. The PI reported that the depth of the study was compromised due to financial limitations, and suggested that the study would have benefited from the inclusion of additional cost calculations.

In all, the study was comprehensive, and at least touched upon all of the major descriptive attributes of the costs of extracurricular events. The failure, however, to itemize cost components beyond the three major cost categories may result in the omission of important detail. Further, use of existing data in lieu of collecting data may have compromised the descriptive accuracy attributable to different record keeping styles among schools. An additional shortcoming lies in the failure to tabulate indirect costs. These costs were not reported, and it was suggested that each district be responsible for its own calculations of indirect costs. However, no description of how to calculate such costs was included. Without such direction, it is doubtful that districts would attempt to calculate these costs.

The primary strength of this study was the clear tabular comparison of the three major cost components for each activity. The derivation of the cost figures, however, is perhaps too vague, and the categories themselves too global to lend much credibility to estimated costs of the reviewed extra-curricular activities.

CASE 6

Decision Situation

In 1982 the Chief State School Officers of the Northwest and Hawaii requested a study on the funding of educational programs for special student populations. The Chiefs wanted a description of the impact funding changes have, or will have, on existing programs for special students. In addition, they wanted to better understand the service options that are currently available. The study was supported by funding from the National Institute of Education (NIE), and looked at programs offered for four categories of special students:

- handicapped
- gifted and talented
- disadvantaged
- students with limited English proficiency

The report provided a (1) description of the special student populations, (2) described the programs offered and their respective costs, and (3) discussed potential sources of funding for the programs.

Methodology

Several sources of information were examined. Initially, published data on special populations and their educational programs was extracted from national sources such as the National Center for Education Statistics, the Education Commission of the States, and the Department of Education. Relevant literature was also located through the ERIC Clearinghouse. Second, two-day site visits were made to each State Education Agency, and interviews with staff were conducted to obtain data on programmatic requirements, funding methods, expenditures, and number of pupils.

First, available archival data for each special student category in each state were used to calculate (1) total school enrollment, (2) total special service enrollment, and (3) special service enrollment as a percent of the total. Second, state expenditures according to school records for each category was reported, and the expenditure per pupil (total expenditure divided by number of students in the program). Finally, further description breakdowns within each category were also reported as number of students within subcategories (e.g., in the handicapped category, the number of hearing impaired, blind, etc.).

Results and Discussion

The descriptive data were summarized and state by state needs for special services were delineated. Differences in terms of costs for alternative special programs were pointed out.

The study concluded with a discussion of the funding options for each state. Different states used different funding models including (1) resource based models which provide assistance for program requirements for special populations, (2) child-based formulas which provide aid based on the number of children being serviced in the special programs, and (3) cost based models which reimburse the state for some or all of the costs incurred by special programs. The contribution of funds from Title VII and Title I sources were also discussed.

Based on this discussion about funding sources, it was suggested that the states become increasingly responsible for service funding. Finally, the financial capabilities of each state for continued support of the special services were described.

Summary

The PI felt that the study provided good state by state comparative information on special student populations, their programs, and funding sources. There is evidence to suggest that the report information is being effectively disseminated since

the PI has received telephone calls from several states requesting additional information about the report.

In all, this report provided an excellent synthesis of programmatic descriptions, associated costs, and funding procedures on a state by state level. Again, costs of the programs were presented in total figures and were based on archival sources of cost data. While it may have strengthened the study to provide more detail about cost figures, such detail may have gone beyond the requested scope of the study. The Chiefs received the information they requested in a clear and logical format.

CASE 7

Decision Situation

In 1981 a group of urban school superintendents from the Northwest requested a study that would (1) identify the impact that Southeast Asian students have on school districts, (2) delineate how other school districts handle the situation, and (3) compare program costs across districts. To this end, five questions were considered:

1. What is the fiscal impact of providing educational services to Southeast Asian students?
2. What is the number of refugee students to expect in the future?
3. What special curriculum and instruction issues should be addressed?
4. What are student discipline problems?
5. What other services are available to refugees in the United States?

One reason for requesting the study was that districts were finding it difficult to finance the programs for Southeast Asian students due to voter resistance to increased taxes, and reductions in state and federal aid to education.

Methodology

The report began with a discussion of the cultural differences between the six predominant groups (Vietnamese, Cambodian, Laotian, Hmong, Mien and Ethnic Chinese), and reported the numbers of each cultural group in the six states requesting the study. In addition, current percent enrollments, percent enrollment increases from 1980 to 1981, and projected number of

new Southeast Asian students for the next year were reported. This projection was based on the previous year's increase in new students.

Fiscal impact was measured in terms of the costs of ESL and bilingual programs. The budget of these educational services for Southeast Asian students was based on funds provided by the federal government, the state government, and local school districts. The contributions of each of these sources of funds to each urban district was presented in a tabular form. Further, the cost per Southeast Asian student was calculated for each district (total budget divided by the number of Southeast Asian students). Finally, qualitative issues revolving around different instructional styles were also discussed.

Results and Discussion

Similarities and differences between states were drawn in terms of programs offered, and the costs of the programs. The qualitative distinction between the provision of bilingual programs, which provides instruction in native tongue, and English as a Second Language (ESL) programs, where the goal is to mainstream students into regular classrooms, was discussed. It was noted that ESL programs were less expensive and a trend toward adoption of ESL programs was suggested.

Summary

The PI felt that the study provided a good depiction of the impact of southeast Asian students on school districts, both in terms of cultural and financial impacts. The didactic approach of the report was seen as particularly helpful for districts who were newly experiencing this problem. The urban superintendents seemed pleased and one requested that the study be presented to a meeting of his superintendent's cabinet.

The depiction of costs were simplistic but clear. The zeroing in on the three major sources of funds was logical. However, there was no attempt to break costs down into basic components (such as wages, materials, etc.). As a result, while costs per student varied widely across states, there was no indication of the reason for these different costs. This type of information would be most important for school districts who wanted to know specifically where costs could be trimmed. However, the PI reports that such a breakdown would have gone beyond the requested scope of the study.

CASE 8

Although not a cost study per se, costs are discussed in a type of reports routinely produced by the Lab staff called Adopter's Guides. An Adopter's Guide contains explicit instructions on how to institute and maintain an educational program. Usually included in such guides is a cursory consideration of the costs to implement and maintain the program, although often these costs are qualitatively suggested and not quantitatively documented. While these Guides tend to identify costs in a very crude manner, the pervasive reporting of such figures by Lab staff suggested that they warranted inclusion in this report. Examples of the costs reported in Adopter's Guides are located in Appendix B (a qualitative assessment) and Appendix C (quantitative assessments). A non-comprehensive list of Adopter's Guides produced at the Lab is located in Appendix D.

CASE 9

Decision Situation

In 1980, the Chief State School Officers of the Northwest and Hawaii requested a state educational expenditure analysis. The impetus for the study was reaction to the commonly held edict that "schools cost too much." In addition, records showed that while the number of students in school was decreasing, the cost per student continued to increase. The Chiefs wanted a description of how schools spend their money so they could better respond to public criticism on the costs of education.

Three approaches were taken in order to provide plausible explanations to taxpayers. First, school costs were broken down into categories to determine if any cost factors might be elevating the costs more than others. Second, a theoretical discussion considered the possibility that a new importance on the value of education might be contributing to an increase in programs and services. Because of this new importance, it was suggested that new programs were being funded, thereby elevating total school costs. Finally, the recent shift from local to state and federal funding was discussed as a plausible reason for the increased costs. It was suggested that contractual grants that allocated money to specific programs or services might increase costs to support a program that local funding would not support. This review will concentrate on the first approach which broke costs down into identifiable categories.

Methodology

The study began by simply comparing the percent increase of the total cost of education to the percent increase in the cost of living as measured by the Consumer Price Index for Urban

Consumers (CPI-U) for the same time span (1967-1979). National educational cost data were obtained from the National Center for Education Statistics. This comparison showed that the cost of education rose faster than the cost of living with education costs rising (128.4% increase) faster than the cost of living (103.6% increase). It was this 24.8 percent difference (128.4-103.6) betweeen rises in the cost of education and the cost of living that needed to be accounted for to the taxpayer.

The cost of education was broken down into component categories. Present increases in salary categories, as reported by the Educational Research Service, Inc., in the published form of a "Composite Indicator of Changes", for instructional staff (guidance counselors, librarians, psychologists) and classroom teachers were plotted in a graph against percent increase in the CPI-U. Increase in salaries had not kept up with the increase in CPI-U since 1973. In addition, salaries for central administrators, school building administrators, auxiliary professional personnel and support staff were compared with the CPI-U. Again, these increases fell short of the CPI-U increase.

The question then rose, if increases in salaries do not account for the increase in the cost of education over the cost of living, what other cost factors might be responsible for the increases? The increases in the number of school personnel was considered. A 10.3 percent increase in the number of staff was observed. However, of the 24.8 percent increase in salaries, only 4.01 percent of this increase could be attributed to the increased number of staff.

Five other cost categories which might be responsible for increases in the cost of education were identified from school records:

1. Maintenance operations
2. Fixed charges (rental, insurance, retirement, etc.)
3. Other costs (summer school, adult education, community services)
4. Capital outlay
5. Interest rate on school debt

In determining expenditures for the first three categories, the National Center for Education Studies provided data only up to 1976. Two methods of estimating expenditure increases after that time were calculated. The first method determined average increases for each category from 1967-1979. This extrapolation was elaborately calculated (refer to pages 28-32 in the full report for a description of these calculations), but the estimates did not add up to the expected increase of 24.8 percent. This indicated that the estimates did not accurately reflect increases in expenditure. Consequently, a second method of estimation was used. To explain how each of these cost categories contributed to total expenditures, the total rate of growth of school expenditures was multiplied by each category's share of the total expenditures. These estimates were found to more accurately portray the estimated expenditures. Finally, expenditures in capital outlay and interest on school debt did not increase as fast as the CPI, and as a result, their influence could be subtracted out from the percent cost increase. All of these calculations are presented clearly in Table 9:1.

Results

In 10 years CPI-U rose 103.6 percent while total educational expenditure rose 128.4 percent, demonstrating that education had a 24.8 percent greater increase than did the cost of living. At the same time, because of diminishing enrollment, the cost of education per student increased even more. Ten year increase in the cost per student according to average daily attendance (ADA) was 162.5 percent, which is a 58.9 percent greater increase than the CPI-U. Examinination of the increases of component costs indicated that the largest percent of increases were in: fixed charges, presumably due to increasing contribution to retirement systems; and maintenance and operations, increase in cost of fuel, oil, utilities, electricity, and other maintenance items. The largest portion of the budget is allocated to instruction.

Table 9:1

Increase in Educational Expenditures 1969-70 to 1979-80		128.4%
Increase in CPI-U, December 1969 to December 1979		103.6%
Amount Educational Expenditures exceeded CPI-U		24.8%
Factors contributing to the increase		
Increase in Instructional Staff	4.01%	
Increase in Maintenance and Operations	5.43%	
Increase in Fixed Charges	11.29%	
Increase in Other Costs	7.0%	
SUB-TOTAL		27.73%
Factors contriburing to a decrease		
Capital Outlay Expenditures	-4.68%	
Interest on School Debt	-0.36%	
SUB-TOTAL		-5.04%
Real increase explained by these estimates	22.69%	

Instructional staff salary increased at a lower rate than did inflation. However, the number of instructional staff increased during this period, contributing to the general increase in expenditures as well. Expenditures for capital outlay, and interest on school debt did not increase as fast as inflation.

Follow-up

After the national expenditure report was presented to the Chiefs, a replication study on state by state expenditures was requested. This replication study used the same methodology with cost categories for each state identified in terms of those that increased faster than the CPI-U rate, and those that did not increase as fast as the CPI-U rate. No quantitative data were provided in the state-by-state follow-up reports other than (1) increase in the number of instructional staff, and (2) increase in average instructional staff salary as percent of the increase in the CPI-U.

Summary

The PI reported that the client satisfaction was high for the report series. This satisfaction was evidenced by the request for follow-up services. The researcher felt that the study provided an interesting picture of critical issues and made good use of available data.

The study clearly depicted how increase in each of the cost factors contributed to the total increase in educational expenditures. The PI verbally reported a criticism posed by an economist specializing in economic evaluation who reviewed the study at the PI's request. The economist felt that the categories should have been broken down into finer distinctions. Further, the complete reliance on data published by the National Center for Education Studies in lieu of looking at original data was criticized by the economist.

CASE 10

Decision Situation

In 1978 a major four-step study was conducted to "prepare recommendations for changing the current school finance formula to provide greater equity in the distribution of state funds to local school districts." The State Department of Education requested the study and formed a citizens' committee to work in conjunction with Laboratory staff. The purpose of the citizen's committee was to generate options, make policy recommendations, and in general, overview the process of the study. The committee and Lab staff were charged with four tasks:

- A review of the current finance formula and the establishment of criteria to test recommended changes in that formula
- An analysis of the current operation of the school finance formula, including an expenditure analysis, a revenue analysis, and an analysis of the professional personnel in each school district in the state
- A series of simulations showing the effects of various changes to the school finance formula
- The development of recommendations for changing the current school finance formula

Each task was dealt with sequentially during four meetings.

The state involved in this study had a large number of school districts that varied greatly in size, ranging from 2-3 pupils to 10,000 pupils in a district. To facilitate comparisons among districts, districts were grouped into categories based on size of the district, and comparisons across size of districts were used in this study.

Methodology

Each of the four tasks were dealt with in one of four meetings. The first meeting had the citizen's committee rank order according to importance, nine criteria with which to judge the current financial system. First, the criteria of quality, disparity, fiscal neutrality, flexibility, recognition of cost differences, efficiency, tax bases, political acceptability, and simplicity were discussed in small group settings. Second, each group ranked the criteria for importance. The relationship of these criteria to the current financial system was considered the starting point of the study.

During the second meeting, committee members were broken into groups and instructed to study one of three areas of the school finance system: revenue, expenditures, and professional salaries and loads. Revenue and expenditure data were presented in three different ways: (1) dollars per student, (2) as a percent of the total budget, and (3) gross dollar figures. The data on professional salaries and loads was presented in terms of average salaries and number of personnel. The cost information was taken from school records. Also presented were district size, and pupil/teacher ratios for each size category. The committee groups were given the tasks of (1) examining the data for trends, (2) considering the previously generated criteria, and (3) suggesting options for improving the present finance formulas.

At the third meeting, the Lab staff presented the committee with finance simulations based on the funding options generated by the committee during the second meeting. These simulations demonstrated the effects of the proposed changes on the current finance formula. Seven simulations were provided, and the committee was asked to determine the advantages and disadvantages of each simulated option. One simulation duplicated the present school finance formula and was used for comparative purposes. The report did not describe how the simulations were calculated.

The fourth meeting began by reviewing the previous stages of the study and drawing recommendations based on the effects of the proposed changes as shown through simulations. After the committee had reviewed the effects of the simulations, a list of recommendations was prepared. These recommendations were then voted on by the committee members.

Results

After tabulating the votes for each recommendation, it became clear that the committee felt that the current financial funding formula was working quite well. However, some specific recommendations did eventuate from the study. Four general funding changes were recommended, as were changes in the funding allocation procedures for special programs. Three optional changes for financing capital expenditures were advanced, and three school scheduling changes were proposed. Finally, six miscellaneous recommendations were delineated, including that annual expenditure analyses be conducted, that funding commensurate with responsibility for the Office of Public Instruction be allocated, and that suggestions to the Legislature should be held off until additional data had been gathered.

Summary

The PI reports that the Superintendent of Public Instruction was very satisfied with the study, since it provided data necessary for justification of legislative policy change. As a direct result of this study, the State Legislature changed the funding procedures for this state. A follow-up study was requested, but not carried out, due to administrative changes. The PI feels that the follow-up would have provided helpful additional data, and that a standardized finance analysis procedure could have been developed so that the state could have conducted a state analysis on their own in upcoming years. The study can serve as a model on several dimensions: first, as a

demonstration of the relationship of costs to policy; second, on the value of citizen involvement in policy management; and third, on the role of simulations in assessing the impact of proposed budget changes. Finally, the impact of cost data for Legislative funding rulings was shown.

CASE 11

Decision Situation

This study was requested in response to the perceived need for a fair and equitable system of distributing funds to a compensatory education program, given resource cutbacks. Area coordinators of the program wanted to identify cost factors that affect program operation costs, and therefore should be taken into account when budgeting program funds. To identify cost factors and determine how the factors should be reflected in area fund allocations, a meeting of the area coordinators, the supervisor of the Center, the State Coordinator, and a third party evaluator was convened. During this meeting cost factors were identified. Area fund allocation formulas were then developed by the evaluator based on these identified factors for use in program planning and budgeting.

There were notable difficulties in formulating a generic budget for program planning that could be used by programs located in different areas of the state. For example, not all schools offered the same services, and the amount of service offered between schools varied, even though the pupil numbers might be the same. In addition, fund allocation had to take place before enrollment stabilized or final decisions were reached at the federal level. Consequently, a simple allocation formula which can be recalculated in the inevitable events of fund or pupil enrollment changes was needed. The proposed allocation formulas allowed for realistic budgeting and subsequent program planning.

Methodology

Cost factors which had been identified at the initial meeting were grouped into three categories: standard costs, special costs, and a geographic dispersal transportation subsidy. Included within these cost categories are the following cost factors:

Standard Costs (same statewide)
- Regular instruction components (varies by amount offered)
- Support services (per pupil)
- Recruitment and enrollment (per pupil)

Special Costs (budgeted and justified separately)
- Special instructional components
- Administrative costs (including normal travel)

Geographic Dispersal Transportation Subsidy (to be granted to qualifying areas)

Standard cost refers to costs associated with "regular" (typical for the program) educational services. A typical "regular" instruction component is teaching basic skills to children in a school setting. There is a great similarity between regular instructional components across programs throughout the state, thereby justifying the calculation of a standard average cost to be used for all areas.

Support services include services such as home visitations and medical services. Although the costs of these services vary greatly, the number of children receiving the services statewide justified the calculation of a standard average cost for use in all areas. The use of a standard cost for recruitment and enrollment costs was calculated based on the recommendation of the committee.

Special costs are budgeted separately for each local program because of component variability. Special services are those that typically provide more hours of weekly services and often occur out of the school setting, such as counseling programs, home-based preschools, or social support clubs. As an example of

variability of costs of these services, the cost of a home-based preschool is very high compared to the cost of a weekly meeting of a social support group.

Administrative costs were viewed as contingent upon proportion of the coordinator's salary paid by local funds, and the overhead of the sponsoring agency. Consequently, these costs need to be calculated separately for each program.

Finally, geographic dispersion was seen as a major contributor to transportation costs. Some programs covered a wide geographic area, yet had small numbers of students. These select areas qualified for a travel subsidy which was established prior to allocating the budget.

Having identified the cost components of a program, a series of formulas were developed to estimate the preliminary area allocations. In order to determine how much money an area might have for instructional purposes during a given year, the following steps were suggested:

1. The estimated state allocations provided by the federal government (which is based on the number of students enrolled statewide in the program during the preceding year) is X.

2. From X, subtract state expenditures which are fixed deductions due to established policy requirements. The percentages of these deductions for five state expenditures are located in Table 11:1.

3. After subtracting fixed deductions from the total state allocation, you have the percent of the allocated money which can be budgeted for use at the local level. This figure is Y.

4. To allocate the total amount of money available for local area programs, Y, to respective local areas (y), apply the following formula:

   y = the preliminary allocation for a given local area

$$y = \frac{Y}{\text{State total enrolled students}} * \text{Area total enrolled students}$$

The preliminary area allocation, y, can serve as a base for local budget development, and is simple enough to recalculate if state funds change.

Given the amount of money available for an area, allocation for regular and special services can be projected. The cost of regular service can be calculated using state-wide data. A basic unit cost (BUC) is the cost of providing one child with one unit of basic educational service. Costs from the two previous years are used in estimating the BUC, as shown below:

$$BUC = \frac{\text{State Total Instructional Costs - Special Component Costs}}{\text{State Total Participants - Special Component Participants}}$$

Also based on state cost information from the two previous years were the standard costs identified for the following cost factors:

Factor	Percent Deduction*
Administration	11 %
Transportation	4 %
Identification and recruitment	$8.00 per student
Support services	$78.00 per student

*Subject to annual revision.

Table 11:1

Category	Approximate %*
State Administration	1
Summer Set-aside	15
Adjustment Fund	2
Migrant Education Service Center (MESC)	9
Special Transportation Subsidy Fund	.50
TOTAL	27.50%

*These rates are negotiated annually by a committee of those concerned.

Having determined the area allocation, the BUC, and standard costs of education, planning and budgeting for instructional purposes can begin. The area instructional fund (z) available for regular and special programs can now be calculated according to the following steps:

Estimated Area Allocation (y)		_____
Plus: Special Transportation Subsidy (if applicable)		_____
	Subtotal	_____
Less: Administration (Budget) @ 11%	_____	
Less: Transportation @ 4%	_____	
Less: Ident/Recruitment @ 8.00 x FTE	_____	
Less: Support Services @ 78.00 x FTE	_____	
	Subtotal	_____
Area Instructional Fund (z)		_____

The area instruction fund (z) may be further broken down to determine the amount of money to budget for regular and special programs. The cost of regular components (a) can be determined by multiplying the BUC by the number of students. Finally, the amount of money for special programs (b) is that remaining when a cost of regular instruction is subtracted from z (area instructional fund). Area instructional fund (z) - cost of regular components (a) = amount available for special components (b).

Results and Discussion

The task was to come up with a simple fund allocation formula for area budgets given estimates of federal funding. One advantage of the proposed allocation procedure is the promotion of publicly verifiable and realistic budgeting. The PI points out that the primary strength of the allocation procedure is that it allows for an iterative approach to budget planning. If the

initial budget is not reasonable, area coordinators may (1) reduce their budgets to fit the existing funding, or (2) appeal for additional funding. The formulas can then be recalculated based on changes in funding or student enrollment and a new budget projected. The PI reports that this allocation procedure is now in its first year of use on a 2.5 million dollar budget. The service providers have evidenced satisfaction with the procedure. Further, follow-up services have been requested.

CASE 12

The Elementary and Secondary Educational Consolidation Act of 1981 consolidated many discreet federal assistance programs under two chapters and funds the programs assumed under those chapters with block grants. This policy paper was an attempt to assist Chief State School Officers in looking at anticipated changes in policy planning which the new legislation may bring at the SEA level.

The paper begins with a description of each chapter and outlines the specific allocation procedures. In addition, implications for SEA consideration under each chapter were pointed out. One change in policy is that the block grants provided by Chapter II of the Act have few restrictions on how money should be distributed at the LEA level. This latitude given SEAs regarding LEA allocations puts a great responsibility on the Chiefs.

The second section of the paper addressed Department of Education accountability requirements from the SEAs (and, in turn, the LEAs). Each state would be expected to supply a report of its activities including an audit of expenditures, a plan describing how it will spend the money received, a description of how the needs of children in private schools will be met, and a description of the plan for hearing and deciding on complaints about allocation of funds.

Finally, the third section of the paper dealt with policy directions an SEA may choose. First, questions that each SEA should ask itself were presented. Second, alternative answers to these questions were suggested. For example, one question concerned the SEAs' position on a freedom-accountability issue for LEAs. It was noted that each SEA should assume a location on a freedom-accountablity continuum and structure accountability requirements for the LEA, based on that position. If more LEA

accountability is desired, then LEAs must be appropriately alerted to closely monitor their programs, and to provide comprehensive reports. It was noted that for the issues discussed, each state must select a policy that is congruent with state values and capabilities. The author concludes by drawing a distinction between policy description and policy prescription, and points out that the present paper assumes the former role.

CASE 13

This paper looked at the implications for school funding given the passage of Proposition 13 in California. "Proposition 13 limited property tax collections to one percent of market value...and limited the growth in the assessed value of property to two percent per year unless the property is sold." The result of this proposition was to reduce property tax collections, which were the major source of revenue for elementary and secondary schools in California, by 57 percent, representing a loss of 3.1 billion dollars in revenue for schools. As a way of compensating this major loss of revenue, the legislature used surplus funds to provide two billion dollars as "bail-out" funds for schools. However, the schools were still faced with a 10 percent across the board cut on many programs.

The paper went on to describe the impact of the proposition on schools during the past year, and also projected future impact. Two general effects of the Proposition were noted. First, because homes in California are sold an average of every seven years, at which time the home can be revalued to market value, property taxes had not been reduced as much as had been expected; and the property tax burden would gradually shift to homeowners away from business and industrial property. Second, a major effect of Proposition 13 is the loss of local control, since the state now provides a large share of school revenue from income taxes (rather than property taxes, as had been the case previously). This loss of local control was shown to have implications for school functioning.

CASE 14

Shortly after California passed Proposition 13, Idaho passed a similar Initiative. Idaho's One Percent Initiative also limits taxes to one percent of market value. The paper begins by discussing the Initiative itself, and notes policy ramifications for the educational system. One major impact on the school system is that while the Initiative is expected to reduce taxes by 60 percent, no "bail-out" surplus funds exist in Idaho that may be allocated to the schools as was the case in California.

The State Legislature responded to the absence of "bail-out" funds by rewriting school finance statutes through a series of new House Bills. Each House Bill and its relation to school finances was discussed in detail. However, despite these efforts to allay the effect of the new initiative on school systems, it was concluded that schools would probably have to reduce service levels.

Finally, it was noted that in Idaho, as was the case in California, taxpayers would not get the relief they expect, although the reason was assessment inequities in the past and not because of reassessment of the home to market values at the time of purchase. This problem in California was avoided by allowing only two percent annual growth in assessments regardless of changes in ownership.

CASE 15

This policy paper augmented Cases 13 and 14 with a continued discussion of the effects of Proposition 13 in California and the one percent initiative in Idaho on their respective educational systems. The primary point of this paper was the shift of tax burdens to private home owners from commercial and business property owners. In California, as will be recalled, the proposition limited taxes to one percent of the market value, and limited growth in assessed value to two percent per year, unless the property is sold, at which time it is reassessed to the current market value. However, private homes in California are sold on the average of every seven years, resulting in reassessment of the home to market value at that time. In contrast, commercial property is sold less frequently. The result of this is that home taxes will increase at a faster rate than will commercial and business taxes. This same effect was noted in Idaho.

A second ramification of the proposition was the noted development of inequities in home tax rates. For example, two neighbors who live in identical homes may pay different taxes, depending upon when their homes were purchased. Finally, these changes in taxing procedures were tied into the emergence of difficult times for education in terms of available revenue.

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Case 2:

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Case 3:

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Case 4:

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Case 5:

Picus, L. An analysis of the costs of student activity programs: Final report. Regional Research and Development Services Program. Portland, OR: Northwest Regional Educational Laboratory, October 1981.

Case 6:

Picus, L. The education of special populations in the Northwest and Hawaii: A regional depiction study. Center for State Studies. Portland, OR: Northwest Regional Educational Laboratory, June 1982.

Case 7:

Picus, L. and Vominh, [illegible] H. The education of Southeast Asian refugee students in the Northwest and Hawaii. Division of Planning and Service Coordination. Portland, OR: Northwest Regional Educational Laboratory, December 1981.

Case 8:

Adopter's Guides

Case 9:

Picus, L. State expenditure analysis: Highlights. Center for State Studies. Portland, OR: Northwest Regional Educational Laboratory, December 1980.

Case 10:

Northwest Regional Educational Laboratory. Montana foundation study: Final report. Portland, OR: Northwest Regional Educational Laboratory, September 1978.

Case 11:

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Case 12:

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Picus, L. California and Proposition 13: A brief analysis. Northwest Center for State Educational Policy Studies. Portland, OR: Northwest Regional Educational Laboratory, July 1979.

Case 14:

Picus, L. A brief analysis of the implementation of Idaho's 1% initiative. Northwest Center for State Educational Policy Studies. Portland, OR: Northwest Regional Educational Laboratory, July 1979.

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Picus, L. Why property tax limitations won't limit everyone's taxes. Northwest Center for State Educational Policy Studies. Portland, OR: Northwest Regional Educational Laboratory, August 1979.

APPENDIX A

Interviewee _____
Program _____

STRUCTURED INTERVIEW
COST ANALYSIS

1. Year and context of the study.

2. What was the decision problem?

3. Who was the primary audience? (client, agency, school district)

   a) What information did they want?

4. Who was the secondary audience? (e.g., funding agency, those who might use or be affected by the study)

5. Who paid for the study? (resources)

6. What type of cost analysis did you use?

   a) What types of factors influenced the analysis strategy you selected? (e.g., literature, review, time financial, or political restraints or limitations)

7. How did you identify and assign values to cost factors? (inputs)

8. If benefits or effectiveness analyses, how did you identify, measure and value outcomes?

9. What conclusions were drawn from the study?

10. How did you present the conclusions to the primary audience? (product)

11. Do you know if the results of your analysis were utilized and program changes implemented?

12. Have you been asked to provide any follow-up services for the client?

13. What is your perception of client satisfaction with the project? (e.g., what have you heard?)

    a) Have you gotten feedback from the client about satisfaction?

14. How confident are you with the results you obtained?

15. What were the strengths of your study?

16. What might have been done better?

APPENDIX B

PROGRAM BUDGETS

An Educational Resource Center's program budget will require the following areas of consideration:

Personnel: It is recommended that personnel be paid according to district guidelines without preferential treatment. In the Jackson County program, the ERC personnel (coordinator, secretary, teachers, instructional assistants) were paid according to contracts between the Jackson IED and Jackson Education Association and Jackson Classified Employees Association.

Travel: The ERC staff should be reimbursed for travel from the home school to another building for observation, testing, and staffing conferences. For the first year or two, adopters may also wish to provide for observation trips to other districts employing a mainstream philosophy. During the two developmental years of the Jackson County program, the ERC teachers and coordinator made a minimum of two such trips yearly.

Supplies: Centers can be expected to operate with whatever supplies budget is available within the district's special education program. Optimally, a supplies budget for a first-year center might be $1,000 for the one-time purchase of permanent materials. Educational Resource Centers in Jackson County had a materials budget of $300 per year and an equipment budget of $100 per year. Suggested supplies are described in Section V.

Cost effectiveness: The following cost effectiveness estimates are based on data from the Jackson County program. Initial implementation cost was estimated at $24,699 for each center for the 1974-75 school year. Developmental cost for the 1975-76 school year was $5,932 per center. The total operational budget per center for 1975-76 was $20,577. Annual per-pupil cost for an average of two hours of direct instruction per day was $1,067, based on 20 students.

APPENDIX C

NC#12 OUT-OF-DISTRICT COSTS

GRADE LEVEL	NC#12 TAPES .75 ea.	S.R.A. COMPUTAPES Class-room	S.R.A. COMPUTAPES Total School	NC#12 FILMSTRIPS 3.25 ea.	PACKETS .09 ea.	PRE/POST TESTS .011 ea.	STRAND TESTS .011 ea.	STRAND TESTS ANS.KEY .011 ea.	GAME AND LAMINATE ORIGINALS .011 ea.	TEACHER ✓ and STUDENT ✓ 1.25 ea.	ADOPTER'S GUIDE 2.75 ea.	No. Skills using FRIENDLY TUTOR	No. Skills using VERI-TECH Mini / Senior	NO. FILE FOLDERS	50¢ CATALOG
1st	72 tapes $54.00	5 tapes	5 tapes	11 FS $35.75	51 pkts $4.59	p/p 10 pre 41 post 41 92 $1.01	31 pgs. .34	31 pgs. .34	694 orig. $7.63	T✓ 1.25 S✓ 1.25 $2.50		4	28 / --	168	
2nd	57 tapes $42.75	13 tapes	12 tapes	8 FS $26.00	48 pkts $4.32	p/p 22 pre 26 post 26 74 $0.81	30 pgs. .33	30 pgs. .33	574 orig. $6.31	T✓ 1.25 S✓ 1.25 $2.50		6	14 / --	151	
3rd	13 tapes $9.75	19 tapes	8 tapes	5 FS $16.25	43 pkts $3.87	p/p 10 pre 32 post 32 74 $0.81	30 pgs. .33	30 pgs. .33	528 orig. $5.80	T✓ 1.25 S✓ 1.25 $2.50		0	15 / --	113	
4th	8 tapes $6.00	17 tapes	17 tapes	1 FS $3.25	57 pkts $5.13	p/p 34 pre 23 post 23 80 $0.88	22 pgs. .24	22 pgs. .24	630 orig. $6.93	T✓ 1.25 S✓ 1.25 $2.50		9	19 / 3	145	
5th	12 tapes $9.00	6 tapes	6 tapes	5 FS $16.25	53 pkts $4.77	p/p 24 pre 29 post 29 82 $0.90	29 pgs. .31	29 pgs. .31	447 orig. $4.91	T✓ 1.25 S✓ 1.25 $2.50		4	9 / --	86	
6th	14 tapes $10.50	32 tapes	32 tapes	3 FS $9.75	47 pkts $4.23	p/p 22 pre 25 post 25 72 $0.79	26 pgs. .28	26 pgs. .28	292 orig. $3.21	T✓ 1.25 S✓ 1.25 $2.50		0	8 / 2	66	
7th	21 tapes $15.75	12 tapes	11 tapes	14 FS $45.50	15 pkts $1.35	p/p 8 pre 7 post 7 22 $0.24	10 pgs. .11	10 pgs. .11	132 orig. $1.45	T✓ 1.25 S✓ 1.25 $2.50		0	-- / --	17	
8th	26 tapes $19.50	19 tapes	15 tapes	5 FS $16.25	51 pkts $4.59	p/p 31 pre 20 post 20 71 $0.78	17 pgs. .18	17 pgs. .18	283 orig. $3.11	T✓ 1.25 S✓ 1.25 $2.50		0	1 / 4	65	
TOTAL	223 tapes $167.25	123 tapes		52 FS $169.00	365 pkts $32.85	567 pre/post tests $6.23	195 pgs. $2.14	195 pgs. $2.14	3,580 originals $39.38	T✓& S✓ grades K-8 $20.00		23	94 / 9	811	

EARLY EDUCATION/PRESCHOOL BUDGET

FOR INITIAL PROJECT

The following budget is merely an example of anticipated costs for a district serving 500 - 600 four (4) and five (5) year old children. (It is estimated that there should be one (1) staff member for every 100 children being screened.)

Flexibility within the budget depends on each individual district or agency utilizing the EARLY-IN Project.

	Initial	Annual
1) Facility		
Building or office space-rent		$ 2,160
Utilities		120
2) Equipment		
Telephone		400
Furniture	$ 375	
Typewriter	600	
Ditto Machine	150	
3) Staff		
Coordinator (Certified ELP - Learning Disability Consultant)		$13,000
Speech Therapist (Certified)		6,000
Paraprofessional Home Instructor		3,850
Paraprofessional Home Instructor		3,850
Secretary/Part-Time FTE.75		3,850
Fixed Charges - Variable		
4) Administrative Overhead		
Payroll, Accounting		500
5) Materials - Curriculum		500
6) Travel (4 employees approximately @ $75 during Home Instruction period (12 weeks)		300
7) Other		300

APPENDIX D

Adopter's Guides

Early Intervention for Children and Parents
A model community program
Early-in
An adoptor's guide 1977
Oregon State Department of Education ESEA Title IV-C
Union County Intermediate Education District
Joan L. Grant, Project director/coordinator

Mastery Learning Project: A mathematics curriculum
An adoptor's guide
North Clackamas School District No. 12
Milwaukie, Oregon. 1977
Dick Phillips, Project Director.

Manual for Developing a Value Education Program
An adopter's guide, 1977
Ashland School District No. 5
Robert E. Frank, Project Director

Mainstreaming: The Educational Resource Centers Model
An adopter's guide. 1977
Jackson County Intermediate Education District
Diane Warrick, Project Director
Steve Isaacson, Staff Trainer